

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

DRAFT

Conditional Major, Operating

Permit: F-07-010

Modine Manufacturing Company

Harrodsburg, Kentucky 40330

January 31, 2007

Babak Fakharpour, Reviewer

SOURCE ID: 21-167-00014

SOURCE A.I. #: 3153

ACTIVITY ID: APE20060002

SOURCE DESCRIPTION:

Modine Climate Systems, Inc. manufactures climate control systems and air-conditioning and heating components for automotive, truck, and off-highway vehicles. Modine also supplies air-conditioning systems for dealer installation after the vehicle is shipped by the manufacturer. The heat exchangers are manufactured from both aluminum and copper at the Harrodsburg facility. The heat exchangers are made up of round tubes, plate fins, return bends, headers or endplates, fittings, and mounting brackets. The process starts by mechanically forming fins from sheet metals and cutting holes large enough to insert the round tubing. The round tubing can be inserted bent or straight. The tubes are mechanically expanded to form a mechanical bond between the tube and fins. Other connectors are soldered or brazed into place. The cleaning and painting occur after the heat exchanger is completely assembled in order to remove any oils and prevent corrosion of the heat exchanger.

Due to the planned significant changes in equipment operation and HAP/VOC emissions Modine withdrew their Title V application and applied for a Conditional Major permit in September 2006. The permit history is summarized as follows:

Document Name	Date Received	Summary
Title V Operating Permit Application Log # F833	12/12/96	Initial Title V air permit application to operate a manufacturing plant for industrial and commercial air conditioning and heating equipment at Harrodsburg, Kentucky
Title V Operating Permit V-97-016 Issued	11/30/99	Title V Air Permit issued for Modine Manufacturing Company, Harrodsburg facility
Title V Operating Permit Renewal App. Log #56408	03/12/04	Application was withdrawn on 9/19/2006
Conditional Major permit Application	9/18/2006	Initial Conditional Major permit to operate manufacturing plant for air-conditioning and warm air heating equipment and commercial & industrial refrigeration equipment

The Federally-Enforceable Permit for Non-Major Source application was deemed complete on January 24, 2007.

COMMENTS:

The facility was issued permit V-97-016 on November 30, 1999. The facility is taking a limit on HAP's emissions to avoid being a Title V major source of air pollution based on the potential to emit more than 25 tpy of a combination of HAP's and 10 tpy of single HAP.

Modine operates two Charge Test Booths, Emission Point 32, where certain products are charged with refrigerant and leak tested prior to further processing. Modine uses Helium as the refrigerant. Helium is listed as a non-VOC in 401 KAR 50:010 Section 1(135). Helium is not listed as a HAP per 401 KAR 63:060 Section 2. Therefore no emissions are accounted for from the Charge Test Booth operations.

One surface coating operation remains in service at Modine, the Electrocoat Paint Line. The two coating materials applied in the Electrocoat Paint Line contain glycol ethers. One of the glycol ethers, ethylene glycol monobutyl ether (EGBE) CAS# 111-76-2 has been delisted as a HAP by EPA on November 29, 2004 (69 FR 692988). Therefore emissions from this source have been adjusted accordingly. The Facility is not a major source, or part of a major source of HAP emissions therefore the Electrocoat Paint Line is not subject to NESHAP 40 CFR 63 Subpart M.

Modine has removed two open-top degreasers, Emission Points 18 and 19, from the facilities degreasing operations. Therefore only one original operable degreasing unit remains, Emission Point 17, the Conveyorized Vapor-cleaning Degreasing Unit.

The other Emission Points that has been removed are as follow:

EP 24(40-42) Evaporator Coal Brazing

EP 7 and 8 Two manual Spray Booths

EP 10 Has only two Solder Repair Stations instead of three

The following is a list of insignificant emission units that has been added and new:

EP 34 (62-65) Controlled Air Braze Furnace

EP 35 (66-69) Parallel Flow Manufacturing

EP 36 (70 & 71) Charge Air Cooler

EP 37 (72) Manual and Robotic welders

Emission factors used to calculate source wide and individual unit emissions were derived either directly from AP-42 or MSDS forms. The exception to that is for the calculation of particulate emissions from welding, soldering, and brazing operations. This emission factor was derived from stack test results from a similar operation to that of the soldering, welding, hand brazing, etc. Therefore 0.092 lb PM per lb of material throughput is used when no specific emission factor is available to calculate particulate emissions.

The following is a list of significant emission units:

EP 17 (17) Conveyorized Vapor Degreaser, construction commenced August, 1980

EP 03 (06,11,12) Electrocoat Paint Line (E-Coat), construction commenced prior to February 4, 1981.

EP 14(35) Copper Coil Brazing, construction commenced August, 1979

EP 33 (61) and EP 38 (60) Two new Thermal Degreasers (identical units)

The affected facilities at the source are subject to Kentucky Regulations 401 KAR 59:010, 401 KAR 59:015, and 401 KAR 52:030.

Modine also operates several natural gas-fired boilers and process heaters that qualify as Insignificant Activities in accordance with 401 KAR 52:030, Section 6. These boilers and process heaters, all of which have a maximum heat input capacity of less than 10 mmBTU/hr.

- EP 17 40 CFR 63 Subpart T, National Emission Standards for Hazardous Air Pollutants for Halogenated Solvent Cleaning applies to 2 degreasing units at this source. A carbon absorption unit (EP17) is used to control the emission of VOC and trichloroethylene from the degreasing unit. EP 17, installed August 1980, is classified as an automated batch vapor-cleaning unit.
- EP 03 EP03 consists of one electrodeposition coating unit (E-Coat) and 2 drying ovens. 401 KAR 59:010, New Process Operations, applies to this unit, with PM emissions limited in accordance with 401 KAR 59:010 Section 3(2), and visible emissions limited to less than 20 % opacity. Compliance with opacity and mass standards is assumed due to the nature of this type of coating operation.
- EP 14 401 KAR 59:010, New Process Operations, applies to these sources, with PM emissions limited in accordance with 401 KAR 59:010 Section 3(2), and visible emissions limited to less than 20 % opacity. Compliance assurance with the particulate and opacity limits is met by monitoring the process weight and hours of operation, calculating PM emissions, and conducting monthly qualitative visual observations. The original Title V permit (V-97-016) specified daily visible observations, however Modine noted that no visible emissions were observed during any of the daily observations, and submitted visual observation logs indicating zero visible emissions with their application. Therefore, the frequency has been relaxed to monthly for this renewal.
- EP 33 & 38 401 KAR 59:010, New Process Operations, applies to this unit, with PM emissions limited in accordance with 401 KAR 59:010 Section 3(2), and visible emissions limited to less than 20 % opacity. Compliance with opacity and mass standards is assumed due to the nature of this type of drying operation. These sources are controlled by a Thermal Oxidizer which according to the applicant, is an integrated part of this process. Therefore, the PTE is calculated after the control. To demonstrate compliance, a performance test on this emission unit has been requested to assure that the control, capture efficiency, and operating limits has been established. Note that the control unit must be operated at all times while the thermal degreasers are in operation.

Regulations not applicable:

- a. EP 17 Conveyorized Vapor Degreaser
- i. 401 KAR 61:095 Existing Solvent Metal Cleaning Operations. This regulation only applies to those affected facilities located in a county or portion of a county designated ozone nonattainment (except marginal). Modine is located in a county

designated as attainment for ozone.

- ii. 401 KAR 59:185 New Solvent Metal Cleaning Equipment. The degreaser was constructed prior to June 24, 1992 and is therefore exempt from this regulation.
- iii. 40 CFR 64 Compliance Assurance Monitoring (CAM). This source is exempt from the CAM provisions per §64.2(b)(i) since it is subject to emission limitations under 40 CFR 63 Subpart T, which is an emission limitation or standard proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.

b. EP 03 E-Coat

- i. 401 KAR 61:132 Existing miscellaneous metal parts and products surface coating operations. This regulation only applies to those affected facilities located in a county or portion of a county designated ozone nonattainment (except marginal). Modine is located in a county designated as attainment for ozone.
- ii. 401 KAR 59:225 New miscellaneous metal parts and products surface coating operations. The E-Coat paint line was constructed prior to February 4, 1981 and is therefore exempt from this regulation.
- iii. The facility is not a major source, or part of a major source of HAP emissions therefore the Electrocoat Paint Line is not subject to NESHAP 40 CFR 63 Subpart MMMM
- iv. 40 CFR 64 Compliance Assurance Monitoring (CAM). Not applicable since no control devices are employed to meet an applicable emission limit.

c. EP 29 Natural Gas Fired Boiler 21A

- i. 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction was Commenced After August 17, 1971. Boiler 21A has a capacity of 7.3 mmBTU per hour, this is less than the minimum applicable capacity of 250 mmBTU per hour fossil fuel fired generators.
- ii. 40 CFR 60 Subpart Da, Standards of Performance for Electric Utility Generators for Which Construction was Commenced After September 18, 1978. Boiler 21A is not used in the capacity of generating electricity.
- iii. 40 CFR 60 Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Boiler 21A has a capacity of 7.3 mmBTU per hour, which is less than the minimum applicable capacity of 100 mmBTU per hour.
- iv. 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Boiler 21A has a capacity of 7.3 mmBTU per hour, which is less than the minimum applicable capacity of 10 mmBTU per hour.
- v. 40 CFR 64 Compliance Assurance Monitoring (CAM). Not applicable since no control devices are employed to meet an applicable emission limit.

d. EP 28 Natural Gas Fired Boiler 21B

- i. 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction was Commenced After August 17, 1971. Boiler 21B has a capacity of 8.4 mmBTU per hour, this is less than the minimum applicable capacity of 250 mmBTU per hour fossil fuel fired generators.
- ii. 40 CFR 60 Subpart Da, Standards of Performance for Electric Utility Generators for

Which Construction was Commenced After September 18, 1978. Boiler 21B is not used in the capacity of generating electricity.

- iii. 40 CFR 60 Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Boiler 21B has a capacity of 8.4 mmBTU per hour, which is less than the minimum applicable capacity of 100 mmBTU per hour.
- iv. 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Boiler 21B has a capacity of 8.4 mmBTU per hour, which is less than the minimum applicable capacity of 10 mmBTU per hour.
- v. 40 CFR 64 Compliance Assurance Monitoring (CAM). Not applicable since no control devices are employed to meet an applicable emission limit.

EMISSION AND OPERATING CAPS DESCRIPTION:

For the most part, emission and operating limitations in the sources Conditional Major permit are self-explanatory. However, the following clarifications are being made here.

The source has avoided Title V applicability by accepting federally enforceable limits on the Conveyorized Vapor Degreaser's HAP emissions.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.